

## PATENT ABSTRACTS OF JAPAN

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(71)Applicant : FUJITSU LTD

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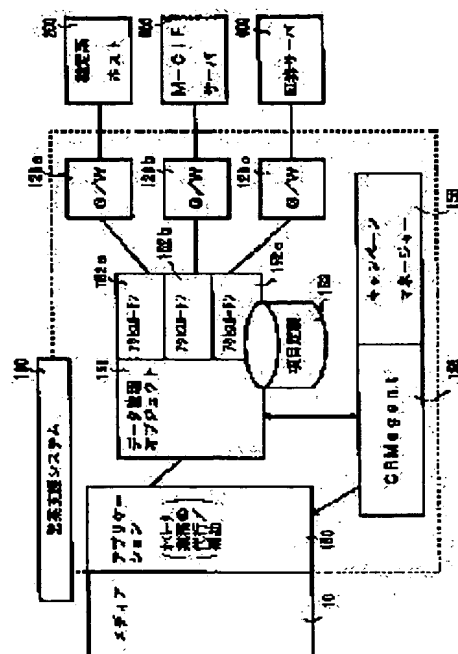
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AKITA KIYOBUMI

## (54) BUSINESS AIDING SYSTEM

## (57)Abstract:

**PROBLEM TO BE SOLVED:** To make it possible to provide up-to-date information processed by an existing external processing system to a terminal equipment used by a customer by converting response service information obtained from the external processing system into a format allowed to be processed in the system and providing the converted information to the customer.

**SOLUTION:** A data management object 151 executes data collection and the management of information to be provided to customers. Access routines 152a to 152c respectively access external processing systems (a bank account host 200, a data base 300 and securities company host 400). Gateways 120a to 120c execute protocol conversion. A CRM agent 155 and a campaign manager 156 respectively provide various campaigns (annular pension, new contract, loan, securities, etc.), information to respective customers. Thus the object 151 obtains information related to respective requests from the external processing systems (bank account host 200, etc.), through the gateways 120a to 120c for executing protocol conversion. Consequently the obtained information is always up-to-date one.



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CLAIMS

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[Claim(s)]

[Claim 1] A service request creation means to create the service information-requirements data to an external processor in the form of predetermined according to the demand from a terminal unit, While transforming the format of the service information-requirements data created with the service request creation means into the format which can be processed in an external processor A data-format conversion means to change into the predetermined format concerned the service information which answers these service information-requirements data and is offered from an external processor, The operating support system equipped with a service information offer means to provide for the terminal unit of demand-service information changed into predetermined format with data-format conversion means origin.

[Claim 2] The operating support system which has a campaign monitor means to supervise the rate of conclusion of the campaign based on the service information offered to a customer in a operating support system according to claim 1, and a service information decision means to determine the service information which should be offered to each customer according to the rate of conclusion of the supervised campaign.

[Claim 3] A operating support system equipped with a service channel decision means to determine the offer means of the service information to each customer in a operating support system according to claim 2 according to the rate of conclusion of the supervised campaign.

[Claim 4] The operating support system equipped with an adjustment means to adjust so that the offer means of the service information determined with a service channel decision means may not concentrate on a specific thing in a operating support system according to claim 3.

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## DETAILED DESCRIPTION

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### [Detailed Description of the Invention]

#### [0001]

[Field of the Invention] This invention relates to a operating support system, connects the external existing processor and various terminal units (a bank account system, an instrument host, data warehouse, etc.) (channel) in detail, and it relates to the operating support system with which it enabled it to provide the existing processor of which the customer expects the information from a terminal unit while enabling it to provide for the optimal terminal unit with which a customer uses the newest information on the existing processor.

#### [0002]

[Description of the Prior Art] The operating support system of a configuration so that it may be shown in the former, for example, drawing 1 , is proposed. It connects with the media 10, such as computer terminal equipment which is installed in the call center in a bank etc. and was installed in the floor of a bank etc., and telephone, and this operating support system 60 is constituted so that various service information may be offered to media 10.

[0003] This operating support system 60 is equipped with the database 65 about service information, such as the item definition unit 63, customer information, etc. that the application 61 which performs the vicarious execution and assistance of operator operation about bank service, the data control object 62 which performs collection and data control of data, the location location of each data, etc. are defined. And media 10 to information (for example, inquiry for the balances of an account) If a demand command is inputted, the corresponding application 61 will request retrieval of the information concerning a demand from the data control object 62. If the data control object 62 has the information concerning a demand in the data control object 62, it will return the information to application 61 as it is. Moreover, information which will start the demand from a database 63 with reference to the item definition unit 63 if there is no information concerning a demand in the data control object 62 (account balance) While searching and incorporating in the data control object 62, it returns to application 61.

[0004] Application 61 will be returned to the media 10 with a demand of the information if the information concerning a demand is acquired from the data control object 62. Consequently, the customer who uses the media 10 can acquire service information, such as the account balance, through media 10.

#### [0005]

[Problem(s) to be Solved by the Invention] By the way, in the conventional operating support system which was mentioned above, the database 65 about the service information on customer information is looked like [ batch processing in a week unit and a moon unit, or DIREDO processing ], from the account system of a bank, or a data warehouse in each place, collects information and is usually updated more. Therefore, it may differ from the information actually managed by the account system of a bank to the demand from the customer using media 10, and the newest information cannot be offered.

[0006] Moreover, processings which should be performed between the account systems of a bank since direct continuation is not carried out to the processor of the exteriors, such as an account system of a bank, and a data warehouse, (transfer processing, loan agreement, etc.) The

system of another system must perform. Then, the technical problem of this invention is offering the operating support system which can perform information-interchange processing between a terminal unit and an external processor while being able to provide the terminal unit which a customer uses with the newest information currently processed in the existing external processor.

[0007]

[Means for Solving the Problem] In order to solve the above-mentioned technical problem, the operating support system concerning this invention A service request creation means to create the service information-requirements data to an external processor in the form of predetermined according to the demand from a terminal unit so that it may be indicated by claim 1, While transforming the format of the service information-requirements data created with the service request creation means into the format which can be processed in an external processor A data-format conversion means to change into the predetermined format concerned the service information which answers these service information-requirements data and is offered from an external processor, It is constituted so that it may have a service information offer means to provide for the terminal unit of demand-service information changed into predetermined format with data-format conversion means origin.

[0008] In such a operating support system, if service information-requirements data are inputted from a terminal unit by actuation of a customer, the service information-requirements data of a predetermined format will be created. And they are conversion (protocol conversion etc.) to the format which the service information-requirements data can process in an external processor. It is carried out. An external processor answers service information-requirements data from a operating support system, and returns service information. it is changed into a format predetermined [ above-mentioned ] in this returned service information (protocol conversion etc.) -- it is provided for the terminal unit of service information demand-origin.

[0009] According to such a system, while being provided to an external processor in the format which service information-requirements data can process by the external processor concerned, the service information on the format original with the external processor concerned of having answered the service information-requirements data and having been returned from the external processor is changed into a predetermined format. Therefore, especially this external processor can be connected, without taking into consideration input/output relation with the operating support system concerned. And a operating support system can provide the terminal unit of a requiring agency with the newest service information on the external processor concerned as information from an imagination database.

[0010] Moreover, since it connects with the external processor, this operating support system can support information-interchange processing performed between a terminal unit and an external processor. It can \*\*, if it constitutes so that it may have a campaign monitor means supervise the rate of the campaign based on the service information offered to a customer of conclusion in the above-mentioned system from a viewpoint that suitable service information can offer to a customer so that this invention may be indicated by claim 2, and a service information decision means determine the service information which should offer to each customer according to the rate of the supervised campaign of conclusion.

[0011] Moreover, in the above-mentioned system, this invention can be constituted from a viewpoint that service information can be offered with the offer means of a customer's user-friendly information so that it may have a service channel decision means to determine the offer means of the service information to each customer according to the rate of conclusion of the supervised campaign, so that it may be indicated by claim 3. Furthermore, in the above-mentioned system, this invention can be constituted from a viewpoint of making it the load to the offer means of service information not focus so that it may have an adjustment means to adjust so that the offer means of the service information determined with a service channel decision means may not concentrate on a specific thing, so that it may be indicated by claim 4.

[0012]

[Embodiment of the Invention] Hereafter, one gestalt of operation of this invention is explained based on a drawing. The hardware configuration of the operating support system concerning one

gestalt of operation of this invention is shown in drawing 2 . This operating support system is installed in the call center of a bank. In drawing 2 , this operating support system 100 has the exchange 101, an audio response unit (Voice Response Unit:VRU) 102, the operator terminals 103a and 103b, and a server 105. Telephone 11 and facsimile 12 are connected to the exchange 101 through the public network 40. The exchange 101 connects the call from telephone 11 to an audio response unit 102 in principle. Moreover, this exchange 101 is equipped with the autocal distribution frame (ACD), and the call from the outside can distribute it to each operator terminals 103a and 103b according to a predetermined algorithm. The above-mentioned audio response unit 102 and the operator terminals 103a and 103b are connected to a server 105, and the information accumulated into the server 105 can be used now, respectively. Each operator terminals 103a and 103b have the internal-organs telephone unit (TAPI), and each operator can operate the operator terminals 103a and 103b, holding conversation with a customer in the built-in telephone unit. This operating support system 100 has the router 110, the reception terminal 111, and the server 115 further. The computer terminal (a personal computer terminal, the so-called KIOSK terminal, etc. are included) 20 is connected to the router 110 through the data communication networks 50, such as the Internet. It connects with a server 115 and the reception terminal 111 connected with other computer terminals on the data communication network 50 through the router 110 can use now the information on this server 115.

[0013] This operating support system 100 has Gateway 120a, 120b, and 120c further again. Such Gateway 120a, 120b, and 120c is connected to LAN with each servers 105 and 115 mentioned above. Gateway 120a, 120b, and 120c -- respectively -- the account system (host) of a bank -- 200, the database (M-CIF) 300 of a data warehouse, and the host 400 (each is an external processor) of a securities firm are connected. the account system 200 of the above-mentioned bank, a database 300, and the host 400 of a securities firm are provided with the data processed within the operating support system 100 through Gateway 120a, 120b, and 120c -- the account system 200 of the above-mentioned bank, a database 300, and the data from the host 400 of a securities firm are both incorporated in the operating support system 100 concerned through Gateway 120a, 120b, and 120c, respectively.

[0014] Moreover, it connects with LAN, and the customer-relationship-management server 125 which stored member (customer) information looks like [ each operator terminals 103a and 103b and the reception terminal 111 ] the information in this customer-relationship-management server 1245 through servers 105 and 115, and can use it now. The operating support system 100 used as the above hardware configurations has the functional configuration as shown in drawing 3.

[0015] Namely, this operating support system 100 is functionally combined with the media 10, such as the above-mentioned telephone 11, facsimile 12, and a computer terminal 20. the application 150 which performs vicarious execution and assistance of the operator operation concerning offer of the service information to a customer, the data control object 151 which manages information with which data collection and a customer should be provided, and an external processor (the account system host 200 of a bank, and a database 300 --) the item definition 153 the relation of the access routine for obtaining the access routines 152a, 152b, and 152c which perform access processing to the host 400 of a securities firm, and each data item and its data was described to be -- and It has Gateway 120a, 120b, and 120c which performs protocol conversion. Moreover, the customer-relationship-management agent 155 and the campaign manager 156 for offering various campaign information (a benefit, a new commuter's ticket, a loan, instrument, etc.) are prepared to the customer.

[0016] The above-mentioned application 150, the data control object 151, access routines 152a-152c, the definition item 153, the customer-relationship-management agent 155, and the campaign manager 156 are built as a function of the operator terminals 103a and 103b shown in drawing 2 , and servers 105 and 115. the campaign information based on [ the above-mentioned customer-relationship-management agent 155 performs exchange of the data control object 151 and information, and ] the newest information in this data control object 151 -- generating -- application 150 -- \*\*\*\*\* -- it is like. The campaign manager 156 manages about the campaign information which should be collected of the customer-relationship-management agent 155, the

media 10 (terminal unit) which should be offered, and as shown in drawing 4 , he is constituted. [0017] In drawing 4 , the campaign manager 156 consists of a monitor unit 1561, the campaign selector 1562, the channel selector 1563, a channel balancer 1564, a campaign queue 1565, and a campaign scheduler 1566. The monitor unit 1561 is acting as the monitor of the rate of conclusion, and the rate of conclusion of every channel (media) for every campaign. This monitor's result is used for the scheduling of campaign, load adjustment of a channel, etc.

[0018] The campaign selector 1562 calculates the potential value of the customer (segmented by age, sex, an annual income, etc.) who should recommend campaign using the technique of segment analysis etc., and determines the campaign which should be recommended to a customer based on the potential value. A channel selector 1563 carries out scoring of the affinity of a channel to a customer, and determines the optimal channel to a customer. That is, the channels (an electronic mail, direct mail, telephone, etc.) which have effectiveness to a customer in campaign conclusion are determined. Scoring is calculated as total value of for example,  $x$  (assignment data of channel)  $\times$  weight (operating frequency of channel)  $\times$  weight (mining result)  $\times$  weight. Analysis processing of the goods which should be recommended to a customer as mining here is said.

[0019] The channel balancer 1564 adjusts the channel of each customer who should perform campaign so that a load may not focus on a specific channel. A load factor is computed the first stage by the target processing number of cases and the schedule number of cases of unit time amount for every channel. And operation amends a parameter from the throughput result per unit time amount from a monitor unit 1561.

[0020] The above-mentioned campaign selector 1562, a channel selector 1563, and the channel balancer 1564 amend each decision matter based on the rate of conclusion for every campaign and every channel obtained by the monitor unit 1561. For example, based on the rate of conclusion for every channel by which the monitor was carried out, an effective channel (for example, electronic mail) can be adjusted with some overload (the processing number of cases is amended), and the low channel (for example, direct mail) of effectiveness can adjust frequency low. The rate of conclusion of campaign is raised and such adjustment enables it to offer effective operating exchange.

[0021] In the above operating support systems 100, processing from which application 150 acquires the customer's account balance based on the account number of the customer who caught from media 10 (a telephone, computer terminal equipment) is performed according to the procedure shown in drawing 5 thru/or drawing 7 . In drawing 5 , if there is a demand of inquiry for the balances from media 10 (for example, computer terminal equipment), according to the demand, application 150 will request opening of a record from the data control object 151 (S1). The data control object 151 prepares a record area on memory based on the item information in an item definition 153. Item information has the tag in which the location location (discernment of an access routine) of information besides the attribute of an item is shown. Subsequently, the account number which application 150 caught is contained by the data control object 151. And a read ahead of the data control object 151 is directed (S4). Thus, if a read ahead of the data control object 151 is directed, it will stand in a row with conversation with a user, and a host communication link will be performed. (S5) .

[0022] Then, it shifts to the processing shown in drawing 6 , and application 150 requests reference of the balance from the data control object 151 (S6). It judges whether the data control object 151 already had access about the balance concerning this request (S7), and the access routine (152a, 152b, or 152c) which the tag of the item information in an item definition 153 shows when that access does not exist is still read (S8). In this case, reading appearance of the access routine 152a for accessing the account balance is carried out to the account system 200 of a bank.

[0023] This access routine 152a by which reading appearance was carried out requires inquiry for the balances of corresponding Gateway 120a (S9). in addition, this access routine 152a -- demand information -- the balances will be inquired if called irrespective of how. And Gateway 120a carries out interface conversion of this requested data at the protocol adopted as the data exchange between the account system 200 of the existing bank, and terminal units (ATM etc.).

And inquiry-for-the-balances going-up wording of a telegram is transmitted to the account system 200 of a bank from Gateway 120a (S10).

[0024] Then, it shifts to the processing shown in drawing 7, and the account system host 200 concerned answers inquiry-for-the-balances going-up wording of a telegram, uses as a key the account number contained in the wording of a telegram, and searches the balance of the account. And the going-down wording of a telegram containing the balance obtained as a result is set up, and the going-down wording of a telegram is answered by the operating support system 100 from the account system host 200 (S11). This protocol conversion of the going-down [ which was answered ] wording of a telegram which this Gateway 120a received when it got down and Gateway 120a received wording of a telegram is performed, and is relayed to access routine 152a (S12).

[0025] Access routine 152a gets down, extracts information, such as the balance, from wording of a telegram, and supplies the extracted information to the data control object 151. And the information is stored in the memory of the data control object 151 (S13). Then, the data control object 151 hands over the information in memory to application 150 (S14). The application 150 which acquired information, such as the balance, provides the media 10 of the demand origin with the information about the account balance etc. Consequently, a customer can know the account balance of the customer concerned from the media 10.

[0026] In addition, in processing at step S7 shown in drawing 6, if it judges that the data control object 151 is already access ending about the balance, processing will shift to step S14 shown in drawing 7 R> 7, and the data about the balance stored in memory will be handed over by application 150 from the data control object 151 by already being accessed.

[0027] In the above systems, since he is trying for the data control object 151 to acquire the information concerning a demand from an external processor (account system 200 grade of a bank) through Gateway 120a, 120b, and 120c which performs protocol conversion, application 150 can acquire the information which starts the demand concerned by the processing same with acquiring information from the conventional database (referring to drawing 1). And the information is directly acquired from an external processor (account system 200 grade of a bank), and always becomes the newest thing.

[0028] Moreover, since an external processor (account system 200 grade of a bank) is connectable with the operating support system 100 concerned by the same connection relation as the existing terminal unit by using Gateway, it does not need to perform the design change of the processor of the exterior concerned. Moreover, the monitor of the processing which provides a customer with the information about service information (account balance, campaign information, etc.) as mentioned above is carried out by said campaign manager 156, and the campaign information to which a customer is likely to be concluded according to the monitor result will be offered using the most effective channel to the customer concerned.

[0029] It is possible to also make two or more servers distribute the function of the operating support system 100 which was mentioned above. As shown in drawing 8 in this case, two or more systems are unified by the broadcloth channel bass. In drawing 8, the operating support system 100 (1) thru/or 100 (n) are distributed, it is prepared, and each operating support system 100 (i) and (i=1-n) have application [ which was combined with media 10 (i) ] 150 (i), data control object 151 (i), access routine 152a (i) - 152c (i), and an item definition 153 (i) like what is shown in drawing 3. In addition, although not illustrated, each operating support system 100 (i) has the customer-relationship-management agent and the campaign manager like the example of drawing 3.

[0030] access routine 152a (i) - 152c (i) of each operating support system 100 (i) is connected to the broadcloth channel bass 500 in juxtaposition -- having -- this broadcloth channel bass 500 -- each operating support system 100 (1) - 100 (n) is unified. Furthermore, Gateway 210a-210c which performs protocol conversion between the account systems 200 of a bank, Gateway 310a and 310b which performs protocol conversion between the databases 300 of a data warehouse, and Gateway 410a and 410b which performs protocol conversion between the hosts 400 of a securities firm are connected to this broadcloth channel bass 500. Consequently, any operating support system 100 (i) becomes possible [ performing the data exchange through the



broadcloth channel bass 500 and Gateway between external processors (the account system 200 of a bank, a database 300, host 400 of a securities firm) ].

[0031] Furthermore, the bus supervisory equipment 520 which performs the monitor of the integrated supervisor 510 which manages the distributed whole system, and the broadcloth channel bass 500 concerned is connected to this broadcloth channel bass 500. The broadcloth channel bass 500 has functional composition as shown in drawing 9 . namely, each unit 500 (1) -- which consists of node application, communication link API, a bus system, a communications protocol, and a LAN protocol corresponding to the distributed operating exchange stem -- 500 (n) builds -- having -- each unit 500 (1) -- 500 (n) is connected to the TCP/IP network network. Moreover, it has monitoring system 520a which manages directories, such as destination information corresponding to the above-mentioned bus monitoring system 520. This monitoring system 520a is constituted by bus supervisory equipment application, communication link API, a bus system, a communications protocol, and the LAN protocol, and is connected to the TCP/IP network network.

[0032] The bus system in each above-mentioned unit is \*\*\*\*(ing) the function as shown in drawing 10 . That is, if communication link API attaches the logic destination and transmission and reception are requested, a bus system will change into the real destination (usually destination of the script in a bus) the logic destination received based on the node directory information and script information which are distributed from bus supervisory equipment 520. And as a matter of fact, the information concerning a demand is transmitted to the destination. This destination may be a script. In the script used as the destination, it becomes generable [ processing of a message, or a new message ].

[0033] Moreover, the service provision to a customer becomes possible in the following procedures with the operating support system 100 (refer to drawing 2 and drawing 3 ) which was mentioned above. The following examples are the procedure in the case of contracting a loan agreement with an Internet user.

1) The information (frequency of a utilization channel, assignment of a customer) on a database (M-CIF) 300 is judged dynamically, for example, if it is an Internet user, advice will be sent by E-mail.

[0034] 2) shift to a web screen immediately by clicking the URL in a customer's terminal unit by including URL in the electronic mail (carrying out internal issuance of the inquiry for the balances by SET Challenge Handshake Authentication Protocol -- a principal -- authentication is completed).

3) Carry out automatic connection to customer relation pin center, larges (coal center etc.) with the carbon button wishing a consultation of web.

[0035] By the dialogue with a customer, financing conditions etc. are arranged and the content of an agreement is hardened. A request-for-decision application is automatically made by sending the last conditions on consumer premises equipment equipment (PC), and pushing a carbon button with a customer's intention. An automatic examination system is interlocked with all busy, and a primary examination is performed. this time -- conversation sound recording and voiceprint authentication -- a principal -- since the improvement in precision and an intention check of a check can be taken, a legal trouble can be coped with.

[0036] 4) Moreover, automatic creation is carried out and a request for managerial decision is forwarded by the examination category via a workflow.

5) Carry out the result of an examination with automatic feed by E-mail according to examination category acknowledgement.

6) actual -- the principal in a shop front -- send a refund schedule and an agreement, without checking.

[0037] 7) It is at the authentication event and extension of financing is performed instantly.

A customer comes to a shop front conventionally as mentioned above, and the loan agreement which the direct line required becomes possible [ insurance and carrying out certainly ] using the Internet.

[0038]

[Effect of the Invention] As mentioned above, since it changes into the format that the response

service information from an external processor can be processed within a system and the customer provided with the service information while changing the service information-requirements data raised from a customer's terminal unit into the format which can be processed in an external processor according to this invention, as explained, the terminal unit which a customer uses can provide with the newest information currently processed in the existing external processor.

[0039] Moreover, an external processor and the operating support system concerned can perform information-interchange processing now between a terminal unit and an external processor by making direct continuation.

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## DESCRIPTION OF DRAWINGS

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### [Brief Description of the Drawings]

[Drawing 1] It is the block diagram showing the example of a configuration of the conventional operating support system.

[Drawing 2] It is the block diagram showing the hardware configuration of the operating support system concerning one gestalt of operation of this invention.

[Drawing 3] It is the block diagram showing the example of a functional configuration of the operating support system concerning one gestalt of operation of this invention.

[Drawing 4] It is the block diagram showing a campaign manager's detail functional configuration.

[Drawing 5] It is the flow chart (the 1) which shows the procedure of the processing performed with a operating support system.

[Drawing 6] It is the flow chart (the 2) which shows the procedure of the processing performed with a operating support system.

[Drawing 7] It is the flow chart (the 3) which shows the procedure of the processing performed with a operating support system.

[Drawing 8] It is the block diagram showing the example of a configuration at the time of distributing the function of a operating support system.

[Drawing 9] It is the block diagram showing the example of a functional configuration of a broadcloth channel bass.

[Drawing 10] It is the block diagram showing the function of a bus system.

### [Description of Notations]

10 Media

11 Telephone

12 Facsimile

20 Computer Terminal

100 Operating Support System

102 Audio Response Unit

103a, 103 Operator terminal

105 Server

111 Reception Terminal

115 Server

120a, 120b, 120c Gateway

150 Application

151 Data Control Object

152a, 152b, 152c Access routine

155 Customer-Relationship-Management Agent

156 Campaign Manager

200 Account System of Bank

300 Database

400 Host of Securities Firm

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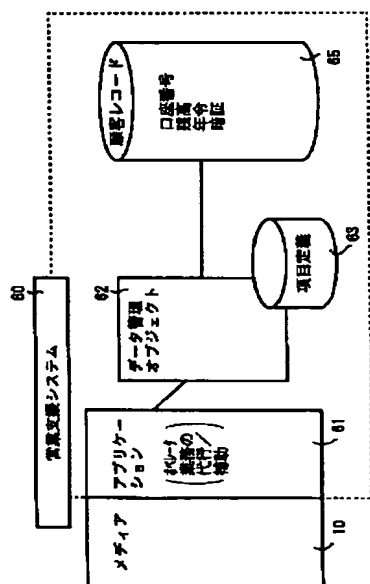
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## DRAWINGS

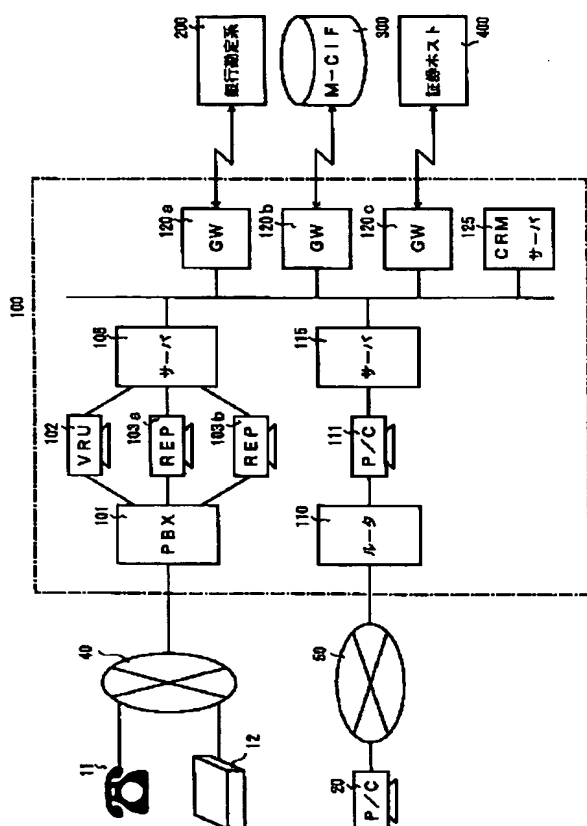
[Drawing 1]

従来の営業支援システムの構成例を示すブロック図



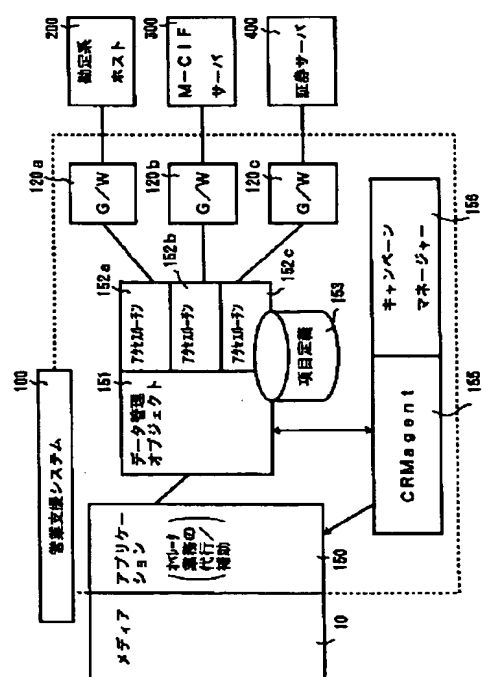
[Drawing 2]

本発明の実施の一形態に係る営業支援システムの  
ハードウェア構成を示すブロック図



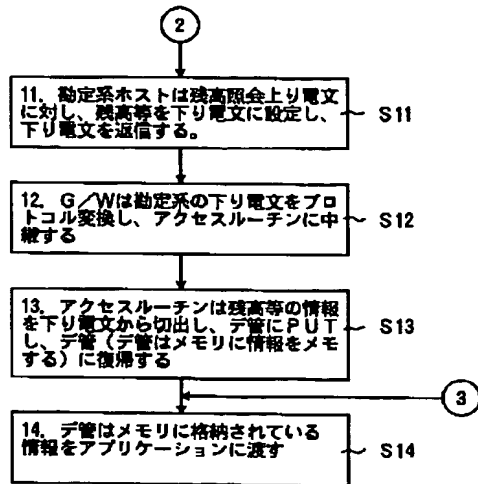
[Drawing 3]

本発明の実施の一形態に係る営業支援システムの  
機能構成例を示すブロック図



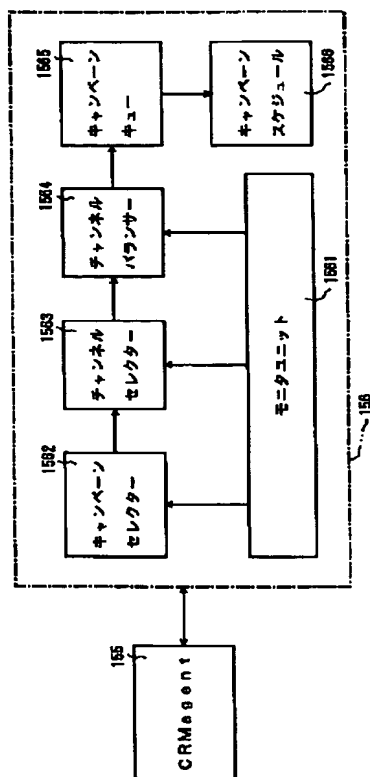
[Drawing 7]

営業支援システムにて実行される処理の  
手順を示すフローチャート（その3）



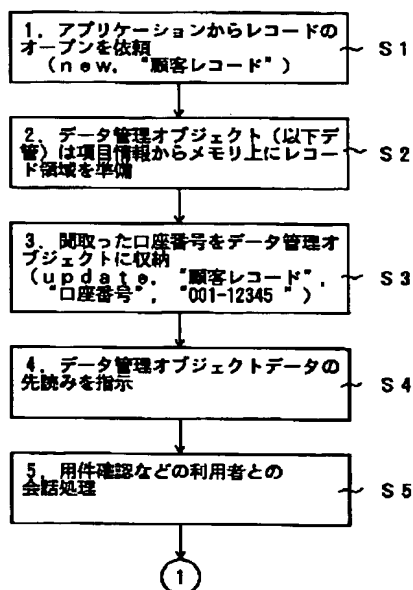
[Drawing 4]

キャンペーンマネージャーの詳細機能構成を示すブロック図



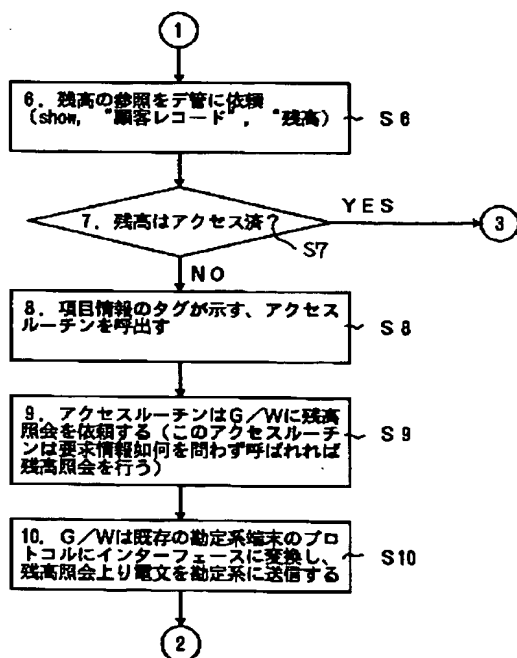
[Drawing 5]

営業支援システムにて実行される処理の  
手順を示すフローチャート（その１）



[Drawing 6]

営業支援システムにて実行される処理の  
手順を示すフローチャート（その２）

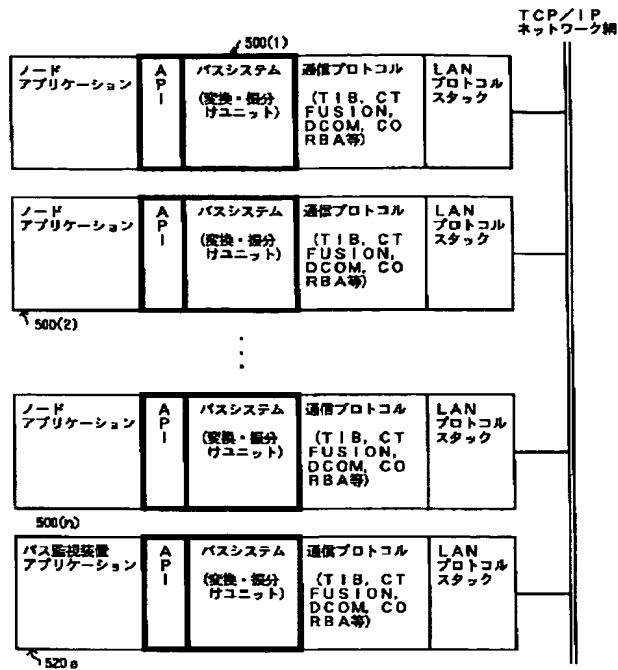


[Drawing 10]





ブロードチャンネルバスの機能構成列を示すブロック図



[Translation done.]

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